The business case for two-way paging

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Executive Summary

This White Paper makes the business case for investing in two-way paging technology and why this technology has the capability to provide the emergency services with the means to further enhance the robustness of their operational and incident management processes and improve efficiency. With accountability to the public such a massive driver behind any investment in technology, two-way paging provides control centres with the means to determine the availability and status of staff, enabling more rapid and informed decision-making on the mobilisation and co-ordination of alternative resources – all whilst providing responders with a device that is durable and easy to use.

Introduction

The future of critical messaging

Across the globe paging, continues to be one of the primary methods of communication for staff involved in real-time critical messaging. It is the fastest, most reliable and cost effective way of sending time sensitive information to many people at once, and will continue to be so for the foreseeable future.

Today, one-way pagers are used in a broad range of industry sectors and for a variety of different purposes including emergency escalations, contacting on call members of staff and managing internal communications. The Critical Messaging Association (CMA) has highlighted several unique qualities such as reliability, vast coverage, independent network, resilience and rapid receipt as some of paging's most compelling benefits.

The advent of two-way paging not only capitalises on one-way paging's unique qualities as highlighted by CMA, but now 'closes the loop' on traditional broadcast messaging, making the technology more versatile than ever before. Such a development offers fresh added value to both its users and the wider public, subsequently delivering a substantial positive change and indeed genuine innovation for the twenty-first century.

We are seeing a focus on developing solutions that perform the same function as current technology at a lower cost or those that enable other cost and time efficiencies. There is a huge appetite for making existing IT investments work harder by extending their use to cover further applications or remits within new departments.

The goal now is to make fundamental changes to the way services communicate so that response times for both normal operations and large-scale incidents are improved, whilst absorbing the funding reductions announced in the Spending Review.

Ultimately the effectiveness of any emergency response can be broken down into three factors; the ability to receive, respond to, and act upon, timely information. This calls for a resilient communications system with no single point of failure that enables swift mobilisation of the most appropriate resource, at the right time, to the right location, to render urgent assistance.

The challenge facing the emergency services is to develop better ways to manage existing assets and resources with the aim of enabling an effective resilient capability that will respond seamlessly in all situations. It may call for initial investment, but the rewards of using the right technology can deliver long term benefits and cost savings.

Two-way Paging – how does it differ to one-way?

Within the two-way pager is a GSM transmitter which works automatically. It is turned off for most of the time, only coming on after a message has been received. When turned on it provides a 'back channel' acknowledgement for 'message delivery' and 'message read', and allows the user to send back a canned message response. When the GSM transmitter is turned off, the pager behaves just as a one-way pager, therefore saving considerable battery life.

As resilience and speed are just as critical for a two-way pager, the GSM transmitter will attempt to make a GPRS data connection immediately after the message has been decoded. If the GPRS connection is unavailable the GSM transmitter will then revert to sending a simple SMS message. Therefore receiving the acknowledgements back also has speed and resilience built in.

PageOne's 2-way Responder combines the strengths of paging and GSM/GPRS to deliver quick and powerful two-way messaging capability. Offering acknowledged messaging, the 2-way Responder also supports enhanced features including an emergency SOS alert button and GPS-based location reporting.

The inclusion of a GPS location device obtains location information and sends this data back with each acknowledgement and reply message. This enables a geographical element to the back channel for the command and control centre to consider.

Once activated by the user the SOS button enables the 2-way Responder to send a silent emergency alert back to the control room together with the pager's last known location. The pager then obtains a new location fix and updates the control centre with its latest position.

Users are equipped with a device that's not only durable and reliable, but most importantly, is also easy to use. It is an ideal way for corporate and public sector organisations, including the emergency services, to further enhance the robustness of their operational and incident management processes. The result is a powerful critical messaging tool capable of tracking location and delivering fast, reliable and guaranteed end to end messaging.

Fully integrated into PageOne's web-based messaging applications, or existing command and control systems, the 2-way Responder also offers immediate access to secure mapping and location based messaging.

» Resilient paging communications

» Able to acknowledge received messages

» Respond quickly via a list of pre-defined responses

» Status updates: users can quickly indicate/ update their current status e.g availability

» Location enabled: find your users and target your messaging with GPS technology

» SOS alerts: make sure your lone workers are in safe hands

» MTPAS enabled: resilient two-way communications during an emergency

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Making the business case for two-way Paging

There are a number of technologies which have been put forward as alternative communications and messaging solutions but for the most part they have failed to make the grade when it comes to pager sensitivity, battery life, size and weight of device, resilience of solution and network quality. Any paging solution needs to have a close strategic fit with the emergency services operational priorities namely;

» Provide 99.5% availability

» Extend coverage to remote areas, and penetrates inside buildings

» Minimises the cost of communicating the same message to many people

» Deliver messages rapidly – under 30 seconds

» Function in critical situations such as a major incident

» Extensive battery life

» Provide group calling; one message, to up to one million people – simultaneously

» Enable discrete and silent communications

» Integrate with other devices and software to provide critical messaging alerts

» Integrate with CAD software systems

Improving resource management and productivity

Emergency services out in the field can use the 2-way Responder to update the control room of their current operational status. The individual can select updates such as 'mobile','at scene', 'clear of scene' 'available for deployment', and this information is fed back into the control room.

Another vital piece of information the 2-way Responder can provide is the knowledge of whether the end user is able to attend an emergency incident. This information can reduce crew call out times down to just 2 minutes, whereas one-way systems may take up to 5 minutes to determine if enough crew will arrive to take out a tender. Knowing that messages have arrived means the control room can quickly decide if an emergency message should be escalated or not. Simple changes like this have a significant impact on the management of resources and

enable enhanced targeting of information to operational personnel.

Greater efficiency savings

The greatest present day challenge to improving communications is financial rather than technological. By embracing innovative technology emergency services can significantly offset some of the pressures arising from cuts. Mobilising first responders to an incident quickly and effectively may seem like a simple procedure. However, in reality many crews have first responders with different skill sets and expertise, requiring careful management of teams that may be spread over a wide geographical area. Prime examples include retained fire-fighters and the networks of on-call staff that ambulance services rely on.

The 2-way Responder's 'Book On, Book Off' feature in essence is a dynamic rostering application allows Responders to update their status depending on their shift or capacity to work. With the control centre also able to manage this feature, administrators can establish the availability of both full-time employees and retained staff, to supplement resources. The 'Book On, Book Off' feature has the potential to achieve vast cost savings in this area, and help ensure crews are available when needed in times of emergency.

Unlike other paging devices the 2-way Responder is equipped with a rechargeable battery for convenient and reliable performance. Battery life can be monitored from both the device and control room dashboard, generating an alarm when below 5% capacity so both the user and control room can take action. The 2-way Responder's rechargeable battery also means the device is much more energy efficient and produces less waste than a traditional pager would from non-rechargeable cells. In the long term, considerable savings can be achieved from the rechargeable battery alone, whilst also helping to adhere to environmental standards.

Integration with existing infrastructures

Better co-ordination of information between command and control centres, staff out in the field and key stakeholders is proving to be an important area in which a more effective response can be achieved. PageOne's 2-way Responder technology can work as a secure,

stand-alone hosted solution or be configured to integrate within existing command and control software, offering organisations the flexibility to choose whatever best suits their current method of working. Integrating technologies like Flare, PageOne's dedicated cloud-based messaging suite and other command and control systems will enable the emergency services to significantly raise the bar in terms of the quality and reach of communication, which will lead to much more joined up thinking and action. Information can be logged at the command and control centre and a full audit trail of messaging events can be reviewed at a later date.

Implementation and support

PageOne has already worked with a number of high profile organisations both in enterprise services and the corporate environment to roll out the 2-way Responder. Dedicated personnel are on hand to help implement full-scale rollouts and pilots, and to manage and advise on best practice.

In terms of timescale, most large scale projects can be commissioned within two weeks of the order, and pilots take under a week to set up and run. Experience suggests that some organisations prefer to work to longer timescales in order to fit in with their existing operations and project priorities.

The Government Procurement Services, PSN framework agreement provides quick and simple ordering mechanism via a pre-approved Government call-off contract. This negates the time/cost or local procurement exercises and provides the benefit of nationally negotiated pricing and terms.

The 2-way Responder pagers are available on both rental, or purchase plus airtime options to fit with varying budget preferences. Both rental and airtime charges include all messaging charges, subject to fair use, to allow more accurate budgeting.

Future enhancements to the 2-way Responder

Dual Frequency Scanning

The 2-way Responder can be augmented with the ability to span two separate paging frequencies whilst still performing its two-way functions. This means the pager can listen to two frequencies for critical messages,

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one for example could be an on-site frequency, the other PageOne's UK wide area frequency.

A critical message that is sent out over the on-site and the wide area networks can be received by the 2-way Responder on whichever network has the stronger signal.

As the pager moves between the two paging frequencies it will decode messages allowing coverage to be combined between the two paging networks, and leverages the synergies of on-site paging and commercial wide area paging.

Considerable savings can be made from dual frequency scanning, whilst at the same time, delivering increased resilience and greater combined coverage.

The 2-way Responder in practice

National Resilience Assurance

The National Resilience Assurance team work hand-in hand with the UK fire and rescue service to support large-scale incidents. They have a team of 24 people located within the regions and have specialists in various capabilities dealing with floods, chemical disaster or terrorist attacks. It is critical that when any disaster happens all officers are made aware of the situation immediately so that they can instantly react and offer support to the affected fire and rescue service.

Communications were previously carried out using mobile phones and BlackBerry devices over existing mobile networks but it became clear that this was unreliable, and issues regarding timely responses became prevalent. In contrast to their mobile devices, two-way paging offered a far more effective channel dedicated to mobilising staff in time-critical situations whilst also ensuring rapid response times. Knowing who could attend and who was not available from the widespread team provided huge savings, not only in terms of time efficient deployment of resources, but also running costs.

National Resilience can also be assured of a resilient communications system as PageOne's 2-way Responder pagers are MTPAS-enabled, meaning that in the event of a national disaster, when existing mobile networks can become overloaded, emergency services can use the pager's privilege access SIM when envoked. This provides priority network access; ensuring communications are maintained at vital times.

Norfolk and Suffolk NHS

Responsible for providing specialist mental health services for the whole of Norfolk and Suffolk, Norfolk and Suffolk mental Health NHS Foundation Trust delivers care and attention to around 14,000 people at any one time. Utilising PageOne's powerful SmartGroup technology, on-call doctors and nursing teams are assigned to groups based on the emergencies to which they are qualified to respond. When an incident occurs, administrative staff can initiate messages directly from within Flare, PageOne's dedicated cloud-based messaging suite. Once a message has been sent to the 2-way Responder, the administrative staff at Norfolk and Suffolk can see at a glance whether the message has been delivered and via a number of preset responses, receive acknowledgement of how the message recipient has responded.

"It's vital that the Trust has the underlying systems and processes in place to enable a fast and effective emergency response," said Richard Green, ICT Security Manager Norfolk and Suffolk NHS Foundation Trust. "PageOne's 2-way Responder gives us this flexibility and means our support staff know the exact status of any ongoing incident via the Flare interface. This makes us even more efficient as our team knows which incidents are being dealt with and those they might need to escalate."

Fully integrated into PageOne's cloud-based messaging applications, or existing command and control systems, the 2-way Responder combines the strengths of paging with GSM/GPRS to deliver powerful two-way messaging capability. With this greater intelligence, administrators can make rapid, informed decisions on the mobilisation and co-ordination of staff and resources.

Conclusion

Paging technology remains a key enabler for communications within and between the emergency services, providing an unrivalled mechanism to receive information when co-ordinating an emergency response. The inherent benefits of paging, its successful use in critical environments, can now be combined with two-way communication that will significantly improve response times, reduce operational costs and and make managing resources far more efficient.

The 2-way Responder provides reliable two-way communication with the usual speed,

assurance and reach of one-way paging, only now with the additional capability to acknowledge and respond to a paging broadcast, thus very effectively closing the communications loop. In comparison with SMS, two-way paging delivers more information, but the real benefits to this is that the information can be logged at the command and control centre, providing a full audit trail of messaging events for review at a later date.

The Government may have reduced funding, however it is clear that investment in technology has a huge role to play in alleviating the impact of cuts on first responders and improving operational efficiencies.

About PageOne

PageOne was founded in the mid 1980s, when communications professionals were getting to grips with the possibilities presented by paging and mobile phones. Communicating with colleagues 'on the move' and co-ordinating a response from a single point of command was seen as an integral part of making the public sector workforce more effective and improving emergency services' operations. Over the years, PageOne has played its part in evolving paging technologies and solutions. Its 'firsts' include: the use of satellite technology for paging, email on the move, and the introduction of a pay-as-you-go communications device. In 2008 it introduced Pulse, a dedicated emergency channel for Blue Light organisations, and in 2010 launched the UK's first MTPAS-enabled two-way pager.

The company has proven expertise in critical messaging as well helping clients drive operational and cost efficiencies, deliver effective results and have a real business edge in a competitive market. With a rich heritage in all aspects of messaging including SMS and email, through to voice, location based services and paging; PageOne places its customers at the heart of its product development to help thousands of organisations across the public and major corporate sectors with reliable, efficient and cost-effective solutions.

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